



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/524,548

05/16/2005

Patrick Rey

122748

1412

25944

7590

05/02/2006

OLIFF & BERRIDGE, PLC  
P.O. BOX 19928  
ALEXANDRIA, VA 22320

EXAMINER

NWAONICHA, CHUKWUMA O

ART UNIT

PAPER NUMBER

1621

DATE MAILED: 05/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/524,548	REY, PATRICK	
	Examiner	Art Unit	
	Chukwuma O. Nwaonicha	1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 16 April 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

Claims 1-16 are pending in the application.

#### ***Priority***

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d).

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blackburn et al., {US 5,705,675}.

Applicants claim a process for the production of 3-methylthiopropenal which comprises reacting reaction medium comprising methyl mercaptan and acrolein in the presence of a catalyst comprising an organic base characterised in that the organic

Art Unit: 1621

base is a N-alkyl morpholine compound, and a process for the production of 2-hydroxy-4-(methylthio)butanenitrile which comprises (a) a first step of reacting reaction medium comprising methyl mercaptan and acrolein in the presence of a catalyst comprising an organic base characterised in that the organic base is a N-alkyl morpholine compound to produce a product stream comprising 3-methylthiopropional and said catalyst; and (b) a second step of reacting said product stream with hydrogen cyanide in the presence of a catalyst thereby producing 2-hydroxy-4-(methylthio)butanenitrile, wherein all the variables are as defined in the claims.

**Determination of the scope and content of the prior art (M.P.E.P. §2141.01)**

Blackburn et al. teach a catalytic processes for the preparation of 3-(methylthio)propanal and 2-hydroxy-4-(methylthio)butanenitrile using novel addition catalysts. The novel addition catalysts include: triisopropanolamine, nicotinamide, imidazole, benzimidazole, 2-fluoropyridine, poly-4-vinylpyridine, 4-dimethylaminopyridine, picoline, pyrazine, trialkylamines having from three to eighteen carbon atoms in each of the alkyl substituents bonded to the nitrogen atom and tertiary amines, and an acidic catalyst. Additionally, Blackburn et al. teach the process of making 2-hydroxy-4-(methylthio)butanenitrile, by adding an amount of organic base into the reaction product mixture to promote the reaction of 3-methylthiopropional with hydrogen cyanide. The reaction is conducted at a temperature of 30°C and 70°C and mole ratio of organic base to methyl mercaptan is from 0.001 to 0.02.

**Ascertainment of the difference between the prior art and the claims (M.P.E.P. §2141.02)**

Blackburn et al. process for preparing 3-(methylthio)propanal and 2-hydroxy-4-(methylthio)butanenitrile differs from the instantly claimed process in that applicants' process specifically employ N-alkyl morpholine compound as an organic base catalyst while Blackburn et al. teach a process that employed triisopropanolamine, nicotinamide, imidazole, benzimidazole, 2-fluoropyridine, poly-4-vinylpyridine, picoline, pyrazine, 4-dimethylaminopyridine, trialkylamines or tertiary amines as the organic base catalyst. Another difference between applicants claimed invention and the process of Blackburn et al. is that Blackburn et al. teach a process that operates at a temperature of 30°C and 70°C and employ a mole ratio of organic base to methyl mercaptan from 0.001 to 0.02 while applicants claim a process that operates at a temperature of 20°C and 70°C and employ a mole ratio of organic base to methyl mercaptan from 0.0001 to 0.05.

**Finding of prima facie obviousness--rational and motivation (M.P.E.P.. §2142-2143)**

The instantly claimed process for preparing 3-(methylthio)propanal and 2-hydroxy-4-(methylthio)butanenitrile would have been suggested to one of ordinary skill because one of ordinary skill wishing to obtain 3-(methylthio)propanal and 2-hydroxy-4-(methylthio)butanenitrile is taught to employ the processes of Blackburn et al.

One of ordinary skill in the art would have a reasonable expectation of success in practicing the instant invention by varying the temperature of the reaction, tertiary organic base catalyst or the mole ratio of the reactants from the teaching of Blackburn et al. to arrive at the instantly claimed process for preparing 3-(methylthio)propanal and 2-hydroxy-4-(methylthio)butanenitrile. Said person would have been motivated to

practice the teaching of the reference cited because it demonstrates that the 3-(methylthio)propanal and 2-hydroxy-4-(methylthio)butanenitrile are useful in industrial applications. The Examiner notes that replacing one organic base catalyst with another organic base catalyst in a chemical reaction is a well-known chemical practice to optimize the process efficiency of the system and does not constitute a patentable distinction. Therefore, the instantly claimed invention would therefore have been obvious to one of ordinary skill in the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chukwuma O. Nwaonicha whose telephone number is 571-272-2908. The examiner can normally be reached on Monday thru Friday, 8:30am to 5:00pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann R. Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Application/Control Number: 10/524,548  
Art Unit: 1621

Page 6

Chukwuma O. Nwaonicha, Ph.D.  
Patent Examiner  
Art Unit: 1621



Johann R. Richter, Ph.D., Esq.  
Supervisory Patent Examiner,  
Technology Center 1600